



July 25, 2013

Submitted Via Federal Express

Mr. W. Owen Thompson
Remedial Project Manager
Superfund Remedial Response Section Seven
U.S. EPA Region 5, SR-6J
77 W. Jackson Blvd.
Chicago, IL 60604

Subject: Additional Figures and Summary Tables of
DNAPL Measurements
Detrex Source Control Area – Fields Brook Superfund Site
Detrex Corporation, Ashtabula, Ohio
Docket No. V-W-98-C-450

Dear Mr. Thompson:

On behalf of Detrex Corporation, URS Corporation (URS) is submitting the additional figures and summary tables of DNAPL measurements that were referenced in Tom Steib's letter to you dated July 19, 2013.

An overview of the information provided in this email is as follows:

- Figure 1. This figure provides locations of the original 14 recovery wells and the 6 new recovery wells installed in 2013. Also, monitoring wells used for Detrex quarterly monitoring reports are shown.
- Figure 2. This figure provides locations of monitoring wells that have been installed at the site that have been used for DNAPL monitoring. These wells include Source Control RI wells installed in 1993, DNAPL Pilot Test wells installed in 1997 along with monitoring wells installed during subsequent studies in 1995, 2008, and 2012.
- Table 1. This table provides a summary of DNAPL measurements that have been recorded since the completion of the DNAPL recovery testing program in January 2013. The table provides DNAPL thickness measurements collected in February, March, and July 2013.

The DNAPL monitoring data in this table indicates that there is considerable difference in DNAPL thicknesses in both the Northern and Southern areas of the site. This variation is related to several factors, which include well diameter, well screen length, position of the screen in the clay / backfill soil materials, length of sand pack, and length of time since the well has been bailed.



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Based on our experience at DNAPL sites and procedures referenced by experts in the study of DNAPL, the DNAPL thickness in a well cannot be used to determine the volume of DNAPL in the subsurface. In support of this statement, please note that Pankow and Cherry have discussed the issue of calculating DNAPL volumes and interpreting thickness of DNAPL in monitoring wells in their textbook on DNAPL. (Pankow, Cherry, 1997). The following excerpt was taken from their book, "Dense Chlorinated Solvents and other DNAPLs in Groundwater", Section 13.3.2 Observations in Wells:

"At some sites, DNAPL can be found in one or more monitoring or pump-and-treat wells. Although this finding confirms that the site is a DNAPL site, it is generally impossible to relate the thickness of DNAPL in such wells to the volume of DNAPL in the subsurface. In addition, it is generally not possible to relate the finding of DNAPL in wells to the vertical distribution of DNAPL in the subsurface. The only circumstance in which it might be possible to relate DNAPL thickness in wells to the thickness of DNAPL pools in the subsurface is when DNAPL occurs in large discrete pools in granular media. This has been found at some creosote and coal tar sites where very large volumes of product have been released to the subsurface, but it is rare for chlorinated solvent DNAPL sites. Even when large pools of solvent are found, wells must be installed precisely to intersect the entire vertical thickness of the pool. If the wells do not extend to the full thickness of the pool, the observed DNAPL thickness will be erroneously small. If the wells extend deeper than the base of the pool, the observed DNAPL thickness will be erroneously large. And, even wells are installed appropriately within the pool, the DNAPL thickness in the well can only be related to the pool thickness through the use of information on the capillary properties of the formation and of the well material, together with the properties of the DNAPL. This type of information is seldom available."

In summary, a review of site data along with monitoring procedures established by DNAPL experts indicate that the thickness of DNAPL in wells cannot be used to estimate volume or vertical distribution of DNAPL in the subsurface. Also, based on the plethora of subsurface characterization data that has been collected by Detrex since 2005 (i.e. 1,500 ft. long groundwater collection trench, test pits, soil borings, monitoring wells, MIP data, 6 additional DNAPL recovery wells, and many monitoring points), the geologic conditions at the Detrex Site consist of predominately lacustrine clay soils having low permeability typical of aquitards and not granular media. The DNAPL thickness mapping provided by FBAG on Figure 1 of their letter dated April 12, 2013 along with their estimate of 150,000 gallons of DNAPL is highly inaccurate, erroneous and not consistent with established technical protocol.



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If you have any questions regarding the information provided in this letter report, please do not hesitate to contact me at 216-622-2432 or Tom Steib at 440-997-6131 at your convenience.

Sincerely,

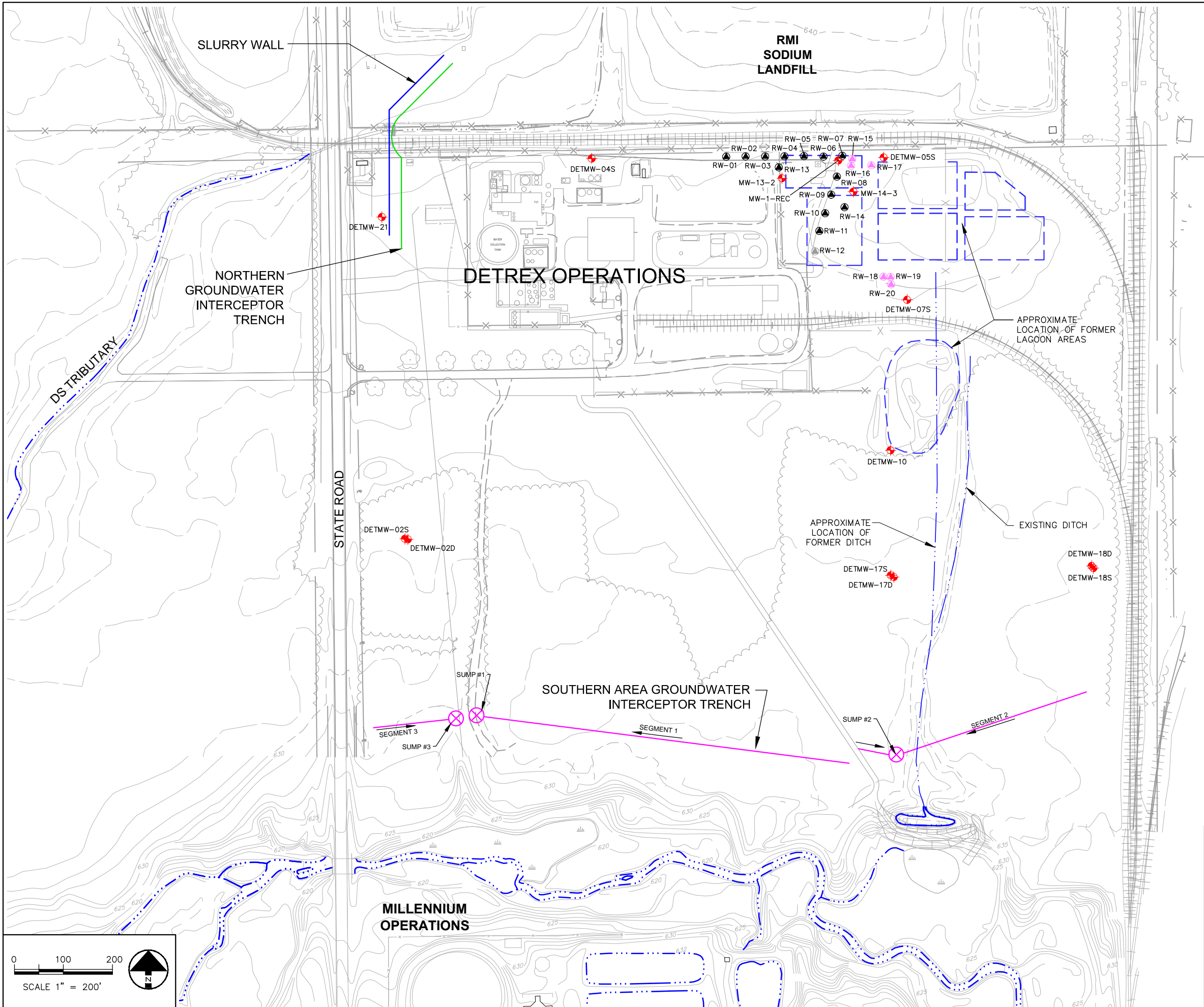
URS Corporation - Ohio

A handwritten signature in black ink that reads "Martin L. Schmidt". The signature is written in a cursive style with a large, stylized 'M' and 'S'.

Martin L. Schmidt, Ph.D.
Vice President

cc: R. Currie – Detrex Corporation
T. Steib – Detrex Corporation
T. Doll - Detrex Corporation
R. Williams – Ohio EPA
P. Felitti, U.S. EPA
W. Earle – SulTRAC

K:\Projects\DETrex\13816274\DWGs\Figures\7-19-13 letter figures\Figure 1 - Quarterly Well Gauging Locations Map.dwg User: anton_heitger Jul 19, 2013 - 11:33am



LEGEND

EXISTING MONITORING WELLS

EXISTING RECOVERY WELL

NEW RECOVERY WELL

ABANDONED RECOVERY WELL

APPROXIMATE LOCATION OF FORMER LAGOON AREAS

SLURRY WALL

NORTHERN GROUNDWATER INTERCEPTOR TRENCH

SOUTHERN AREA GROUNDWATER INTERCEPTOR TRENCH

INTERCEPTOR TRENCH SUMP

EXISTING GROUND SURFACE CONTOUR (ft. MSL)

URS

DETREX CORPORATION
ASHTABULA, OHIO

QUARTERLY WELL GAUGING LOCATIONS

DRAWN BY: AMH	CHECKED BY: MLS	PROJECT No: 13814613	DATE: 07/19/13	FIGURE No: 1
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K:\Projects\Detrex\13816274\DWGs\Figures\7-19-13 letter figures\Figure 2 - DNAPL Recovery Well Study Area Location Map.dwg User:anton_heitger Jul 19, 2013 - 12:25pm

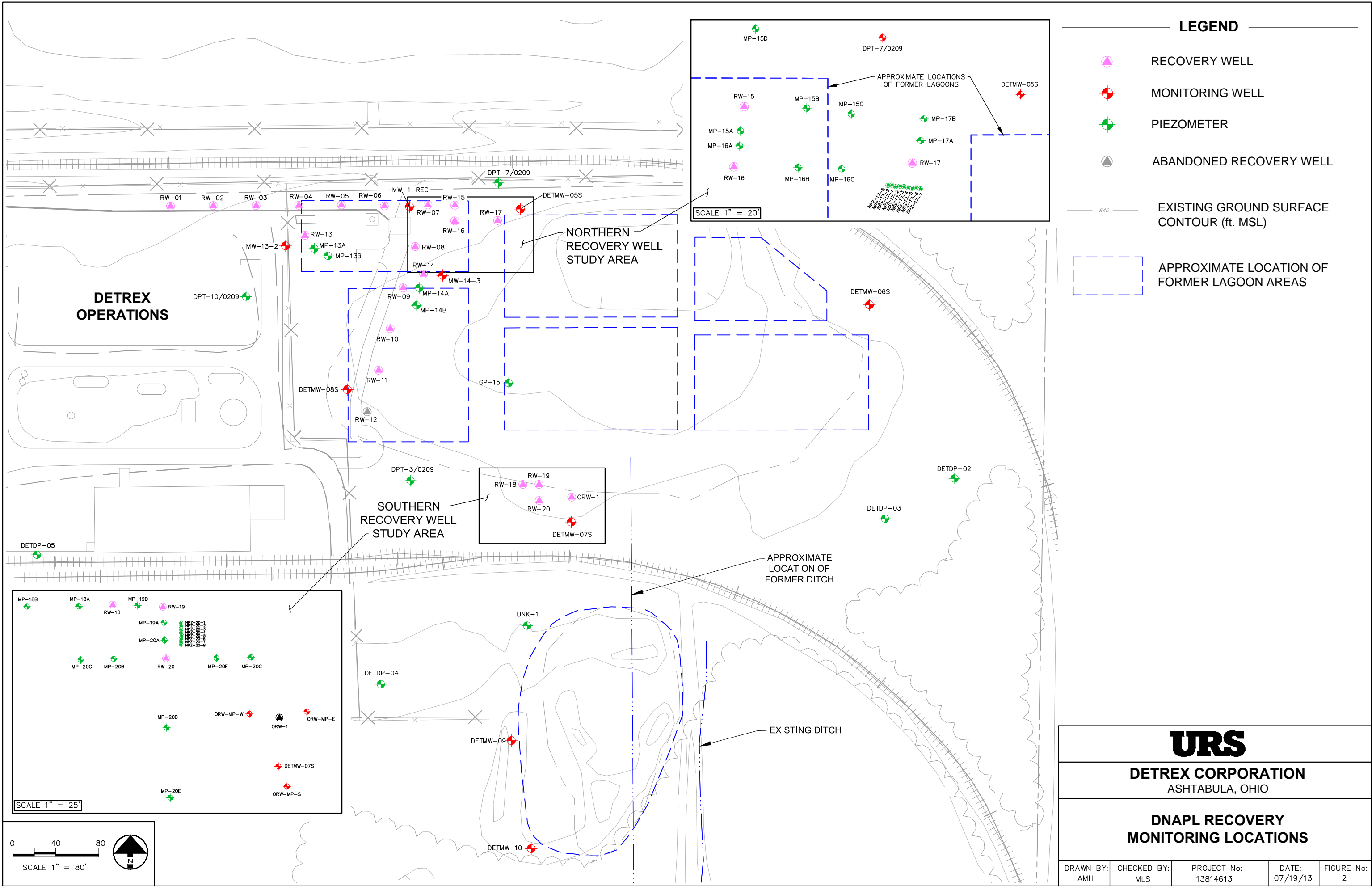


Table 1A
Northern Area DNAPL Thickness Summary
Detrex Corporation, Ashtabula, Ohio

Well ID	Well Size (inches diameter)	Screen Length (feet)	2/5/2013 (ft.)	3/14/2013 (ft.)	7/2/2013 (ft.)
MW-1-REC	2	10-25	1.20	1.25	1.18
MW-13-2	2	10-20	3.15	2.95	2.75
MW-14-3	2	10-23	4.60	4.15	6.05 ¹
DETMW-05S	2	9-19	5.65	5.20	5.85
DETMW-06S	2	7.5-17.5	4.30	4.00	4.17
DPT-7/0209	1	15-25	0.00 ¹	0.00 ¹	1.45
DPT-10/0209	1	5-15	0.00	0.00	0.00
RW-15	6	18-22	2.00	0.00 ¹	2.80
RW-16	6	18-22	1.65	3.35	4.60
RW-17	6	19-23	1.10	2.85	5.18
MP-15A	1	18-22	6.00	6.90	6.70
MP-15B	1	18-22	13.35	13.85	0.75 ³
MP-15C	1	18-22	9.65	10.30	0.09 ³
MP-15D	1	18-22	0.00 ¹	2.85 ¹	0.00 ¹
MP-16A	1	18-22	9.40	10.00	10.05
MP-16B	1	18-22	7.50	7.15	6.94
MP-16C	1	18-22	5.95 ¹	7.60	7.58
MP-17A	1	19-23	2.60	2.95	3.40
MP-17B	1	19-23	5.15	6.60	3.05 ⁴
NPZ-17-1	1	17-18	8.65	9.50	9.50
NPZ-17-2	1	18-19	7.20	8.80	8.87
NPZ-17-3	1	19-20	3.60	4.35	4.67
NPZ-17-4	1	20-21	2.10	2.90	2.70
NPZ-17-5	1	21-22	2.50	4.40	4.46
NPZ-17-6	1	22-23	3.40	5.90	5.93
NPZ-17-7	1	23-24	0.00	0.00	0.00
NPZ-17-8	1	16-17	1.30	1.05	4.73 ¹
NPZ-17-9	1	15-16	5.45	6.00	2.03 ¹

NOTE:

1. Well measurement potentially incorrect due to emulsified interface
2. Bottom of well measurement collected prior to cleaning out silt from well in March 2013.
3. Well accumulated over 10 feet of silt between March gauging event and July gauging event.
4. Well accumulated approximately 3.70 feet of silt between March gauging event and July gauging event.

Table 1B
Southern Area DNAPL Thickness Summary
Detrex Corporation, Ashtabula, Ohio

Well ID	Well Size (inches diameter)	Screen Length (feet)	2/5/2013 (ft.)	3/14/2013 (ft.)	7/2/2013 (ft.)
DETMW-07S	2	9.5-19.5	2.10	2.20	2.51
DETMW-08S	2	9.5-19.5	3.10 ¹	2.50 ¹	2.12 ¹
DETMW-09	2	7-17	1.65	1.35	1.42
DETMW-10	2	7-17	1.10	0.75	0.80
RW-18	6	14-18	0.00	0.00	0.00
RW-19	6	12-16	2.95 ¹	4.45 ¹	5.90 ¹
RW-20	6	12-16	0.00 ¹	0.00 ¹	2.90 ¹
MP-18A	1	12-16	2.30	3.15	3.40
MP-18B	1	12-16	9.15	9.60	9.73
MP-19A	1	12-16	8.90	6.45	5.80
MP-19B	1	12-16	6.10	3.05	3.15
MP-20A	1	12-16	0.75	1.45	3.38
MP-20B	1	12-16	4.15	4.70	4.70
MP-20C	1	12-16	0.00	0.00	0.00
MP-20D	1	12-16	8.80	8.80	9.10
MP-20E	1	12-16	5.60	6.25	6.73
MP-20F	1	12-16	9.05	9.30	9.10
MP-20G	1	17-18	4.15	4.55	5.08
NPZ-20-1	1	17-18	0.00	0.00	0.00
NPZ-20-2	1	16-17	0.00	0.00	0.00
NPZ-20-3	1	15-16	0.00	0.00	0.00
NPZ-20-4	1	14-15	0.00	0.00	0.00
NPZ-20-5	1	13-14	0.00	0.00	0.00
NPZ-20-6	1	12-13	0.00	0.00	0.00
NPZ-20-7	1	11-12	0.00	0.00	0.00
NPZ-20-8	1	10-11	0.05	0.05	0.20
GP-15	1	10-20	3.95 ¹	3.10 ¹	4.75 ¹
DPT-3/0209	1	5-15	0.30	0.30	0.30
ORW-1	6	9-24	13.25	12.80 ²	12.25 ²
ORW-1-MP-N	2	8-23	0.00 ¹	6.70	6.60
ORW-1-MP-W	2	9-24	11.60	11.65	12.25
ORW-1-MP-E	2	8-23	9.50	9.50	11.02 ¹
ORW-1-MP-S	2	9-24	12.40	12.60	13.30

NOTE:

1. Well measurement potentially incorrect due to emulsified interface
2. Well accumulated 0.15 feet of silt and 1.30 silt between each gauging event.